

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A wastewater treatment apparatus for removing nitrogen and phosphorus having a pre-anoxic tank, an anaerobic tank, a denitrifying phosphorus accumulating organism (dPAO) tank, an anoxic tank, an aerobic tank, and a clarifier[,], wherein:

(a) sludge returned from the clarifier and some of the wastewater are introduced into the pre-anoxic tank,

(b) wastewater treated by the pre-anoxic tank and some of the raw wastewater are introduced into the anaerobic tank in which a phosphorous release reaction by microorganisms occurs under anaerobic conditions,

(c) wastewater treated by the denitrifying phosphorous accumulating organism (dPAO) tank and some raw wastewater are introduced into the anoxic tank in which denitrification of nitrate nitrogen occurs under anoxic conditions,

(d) wastewater treated by the anoxic tank is introduced into the aerobic tank in which nitrification and luxury uptake of phosphorous occur with supply of oxygen,

(e) the aerobic tank includes has a baffle installed at one side thereof to form a dissolved oxygen reducing zone for reducing the concentration of dissolved oxygen contained in internally recycled wastewater returned from a dissolved oxygen reducing zone while increasing the concentration of dissolved oxygen contained in

treated effluent supplied from a part other than the dissolved oxygen reducing zone of the aerobic tank to a clarifier in a subsequent stage, and

(f) wastewater treated by the anaerobic tank and the wastewater treated by the dissolved oxygen reducing zone of the aerobic tank are introduced into the denitrifying phosphorous accumulating organism (dPAO) tank in which denitrification and removal of phosphorous occur at the same time by denitrifying accumulating organisms (dPAOs).

2. (Canceled)

3. (Currently Amended) The wastewater treatment apparatus according to claim 21, ~~further comprising a~~ wherein the clarifier ~~for settling~~ settles solid components in the wastewater treated by the aerobic tank.

4. (Currently Amended) The wastewater treatment apparatus according to claim 21, wherein the pre-anoxic tank, the anaerobic tank, the dPAO tank, the anoxic tank and the aerobic tank are installed in a reaction tank divided by a plurality of compartments.

5. (Currently Amended) The wastewater treatment apparatus according to claim 21, wherein the raw influent is introduced by a step feed system.

6. (Previously Presented) A wastewater treatment method using the apparatus according to claim 1, comprising:

supplying raw wastewater to a pre-anoxic tank, an anaerobic tank and an anoxic tank;

denitrifying nitrate nitrogen using organic matter contained in the raw influent of the pre-anoxic tank;

conducting a phosphorus release reaction by microorganisms using the treated wastewater fed to the anaerobic tank after passing through the pre-anoxic tank and the raw wastewater fed to the anaerobic tank;

introducing the wastewater treated by the anaerobic tank to an dPAO tank to conduct denitrification and removal of phosphorus at the same time by dPAOs;

conducting denitrification of nitrate nitrogen using the treated wastewater fed to the anoxic tank after passing through the dPAO tank and the raw wastewater fed to the anoxic tank;

introducing the wastewater treated by the anoxic tank to an aerobic tank to conduct nitrification of ammonia nitrogen and luxury uptake of phosphorus at the same time; and

reducing the content of dissolved oxygen contained in the treated wastewater from a dissolved oxygen reducing zone of a baffle installed in the aerobic tank to return the wastewater to the dPAO tank and increasing the content of dissolved oxygen contained in the treated effluent supplied from a part other than the dissolved oxygen reducing zone of the aerobic tank to a clarifier in a subsequent stage.

7. (Original) The wastewater treatment method according to claim 6, further comprising introducing the wastewater treated by the aerobic tank to the clarifier, settling solid components and returning some of the settled sludge to the pre-anoxic tank.

8. (Canceled)

9. (Previously Presented) A wastewater treatment method using the apparatus according to claim 3, comprising:

supplying raw wastewater to a pre-anoxic tank, an anaerobic tank and an anoxic tank;

denitrifying nitrate nitrogen using organic matter contained in the raw influent of the pre-anoxic tank;

conducting a phosphorus release reaction by microorganisms using the treated wastewater fed to the anaerobic tank after passing through the pre-anoxic tank and the raw wastewater fed to the anaerobic tank;

introducing the wastewater treated by the anaerobic tank to the dPAO tank to conduct denitrification and removal of phosphorus at the same time by dPAOs;

conducting denitrification of nitrate nitrogen using the treated wastewater fed to the anoxic tank after passing through the dPAO tank and the raw wastewater fed to the anoxic tank;

introducing the wastewater treated by the anoxic tank to an ~~oxic~~ aerobic tank to conduct nitrification of ammonia nitrogen and luxury uptake of phosphorus at the same time; and

reducing the content of dissolved oxygen contained in the treated wastewater from a dissolved oxygen reducing zone of a baffle installed in the aerobic tank to return the wastewater to the dPAO tank and increasing the content of dissolved oxygen contained in the treated effluent supplied from a part other than the dissolved oxygen reducing zone of the aerobic tank to a clarifier in a subsequent stage.

10. (Previously Presented) A wastewater treatment method using the apparatus according to claim 4, comprising:

supplying raw wastewater to a pre-anoxic tank, an anaerobic tank and an anoxic tank;

denitrifying nitrate nitrogen using organic matter contained in the raw influent of the pre-anoxic tank;

conducting a phosphorus release reaction by microorganisms using the treated wastewater fed to the anaerobic tank after passing through the pre-anoxic tank and the raw wastewater fed to the anaerobic tank;

introducing the wastewater treated by the anaerobic tank to the dPAO tank to conduct denitrification and removal of phosphorus at the same time by dPAOs;

conducting denitrification of nitrate nitrogen using the treated wastewater fed to the anoxic tank after passing through the dPAO tank and the raw wastewater fed to the anoxic tank;

introducing the wastewater treated by the anoxic tank to an aerobic tank to conduct nitrification of ammonia nitrogen and luxury uptake of phosphorus at the same time; and

reducing the content of dissolved oxygen contained in the treated wastewater from a dissolved oxygen reducing zone of a baffle installed in the aerobic tank to return the wastewater to the dPAO tank and increasing the content of dissolved oxygen contained in the treated effluent supplied from a part other than the dissolved oxygen reducing zone of the aerobic tank to a clarifier in a subsequent stage.

11. (Previously Presented) A wastewater treatment method using the apparatus according to claim 5, comprising:

supplying raw wastewater to a pre-anoxic tank, an anaerobic tank and an anoxic tank;

denitrifying nitrate nitrogen using organic matter contained in the raw influent of the pre-anoxic tank;

conducting a phosphorus release reaction by microorganisms using the treated wastewater fed to the anaerobic tank after passing through the pre-anoxic tank and the raw wastewater fed to the anaerobic tank;

introducing the wastewater treated by the anaerobic tank to the dPAO tank to conduct denitrification and removal of phosphorus at the same time by dPAOs;

conducting denitrification of nitrate nitrogen using the treated wastewater fed to the anoxic tank after passing through the dPAO tank and the raw wastewater fed to the anoxic tank;

introducing the wastewater treated by the anoxic tank to an ~~oxic~~ aerobic tank to conduct nitrification of ammonia nitrogen and luxury uptake of phosphorus at the same time; and

reducing the content of dissolved oxygen contained in the treated wastewater from a dissolved oxygen reducing zone of a baffle installed in the aerobic tank to return the wastewater to the dPAO tank and increasing the content of dissolved oxygen contained in the treated effluent supplied from a part other than the dissolved oxygen reducing zone of the aerobic tank to a clarifier in a subsequent stage.